ABSTRACT

An oxide polishing process that is part of a CMP process flow is disclosed. After a copper layer is polished at a first polishing station and a diffusion barrier layer is polished at a second polishing station, a key sequence at a third polish station is the application of a first oxide slurry and a first DI water rinse followed by a second oxide slurry and then a second DI water rinse. As a result, defect counts are reduced from several thousand to less than 100. Another important factor is a low down force that enables more efficient particle removal. The improved oxide polishing process has the same throughput as a single oxide polish and a DI water rinse method and may be implemented in any three slurry copper CMP process flow.